CLAIMS

What is claimed is:

Sub A2

1. A plasma display panel comprising:

a front glass substrate and a rear glass substrate coupled to each other by a sealing material coated at edges of said front and rear glass substrates;

first and second electrodes on opposing inner surfaces of said front and rear glass substrates so as to cross each other;

a dielectric layer on each of the opposing inner surfaces of said front and rear glass substrates so as to cover said first and second electrodes;

partitions formed on an upper surface of said dielectric layer of said rear glass substrate;

red, green and blue fluorescent substances coated between adjacent ones of said partitions; and

a non-light emitting zone filling portion filling a non-light emitting zone defined between an outermost one of said partitions and the sealing material, said non-light emitting zone portion comprising a material used for one of said partitions.

2. The plasma display panel as claimed in claim 1, wherein said outermost partition and said non-light emitting zone filling portion are substantially formed integrally.

3. The plasma display panel as claimed in claim 1, wherein said non-light emitting zone filling portion completely fills a space between the sealing material and said outermost partition.

4. The plasma display panel as claimed in claim 1, wherein said non-light emitting zone filling portion covers end portions of said first electrodes formed on the front glass substrate.

5. The plasma display panel as claimed in claim 1, wherein a gas exhaust hole is formed at an upper surface of said non-light emitting zone filling portion parallel to a lengthwise direction of said outermost partition.

6. The plasma display panel as claimed in claim 5, wherein a depth of the gas exhaust hole formed at the upper surface is within a range of 10 μm through 160 μm.

7. A plasma display panel comprising:

a front glass substrate and a rear glass substrate coupled to each other by a sealing material coated at edges of said substrates;

first and second electrodes formed on opposing inner surfaces of said front and rear glass substrates so as to cross each other;

a dielectric layer formed on each of the opposing inner surfaces of said front and rear glass substrates to cover said first and second electrodes;

partitions formed on an upper surface of said dielectric layer of said rear glass substrate;

red, green and blue fluorescent substances coated between adjacent ones of said partitions; and

a non-light emitting zone filling portion filling a non-light emitting zone defined between an outermost one of said partitions and the sealing material, said non-light emitting zone filling portion being disposed close to said outermost partition and comprising a material used for one of said partitions,

wherein

an empty space is defined between the sealing material and said non-light emitting zone filling portion, and

said non-light emitting zone filling portion covers end portions of said first electrodes.

8. The plasma display panel as claimed in claim 7, wherein a width of said non-light emitting zone filling portion is equal to a length of the end portions of said first electrodes which extend past said outermost partition.

9. The plasma display panel as claimed in claim 7, wherein a width of said non-light emitting zone filling portion is greater than a length of the end portions of said first electrodes which extend past said outermost partition.

10. The plasma display panel as claimed in claim 9, wherein a sum of the width of said non-light emitting zone filling portion and a width of said outermost partition is 1.0 mm, and a length of the end portion of each of said first electrodes covered by said non-light emitting zone filling portion and said outermost partition is 0.3 mm.

11. The plasma display panel as claimed in claim 7, wherein said first electrodes extend past said non-light emitting zone filling portion where a width of the empty space is less than 50μm.

12. The plasma display panel as claimed in claim 7, wherein a gas exhaust hole is formed on an upper surface of said non-light emitting zone filling portion parallel to a lengthwise direction of said outermost partition.

13. The plasma display panel as claimed in claim 12, wherein a depth of the gas exhaust hole from the upper surface is between 10 μm and 160 μm.

14. A method of manufacturing partitions for use in a plasma display panel comprising:

coating a partition material on an upper surface of a dielectric layer disposed on a glass substrate having electrodes in a predetermined pattern;

forming a cured pattern of a dry film resist to shield partition material portions designated to form partitions and portions corresponding to a non-light emitting zone between

an outermost one of the partitions and a sealing material, said forming the cured pattern comprising

coating the dry film resist on an upper surface of the coated partition material,

exposing the dry film resist, and

developing the exposed dry film resist; and

partially removing the partition material by ejecting abrasion particles at a high speed using the cured pattern as a mask.

15. A plasma display panel, comprising:

a front glass substrate having first electrodes over which a first dielectric layer is formed;

a rear glass substrate disposed opposite said front glass substrate, said rear glass substrate having second electrodes over which a second dielectric layer is formed, the second electrodes not being parallel with the first electrodes;

a seal connecting corresponding edges of said front and rear glass substrates;

partitions formed on an upper surface of the second dielectric layer between the edges of said rear glass substrate;

a fluorescent substance coated between said partitions; and

a non-light emitting zone filling portion disposed between an outermost one of said partitions and said seal so as to prevent a discharge of the first electrodes in a space between said outermost partition and said seal.

16. The plasma display panel of claim 15, wherein said outermost partition and said non-light emitting zone filling portion comprise the same material.

17. The plasma display panel of claim 15, wherein said non-light emitting zone filling portion is connected to and has a same height as said outermost partition.

18. The plasma display panel of claim 17, wherein said non-light emitting zone filling portion fills the space between said outermost partition and said seal.

19. The plasma display panel of claim 15, wherein each of said first electrodes comprises

a terminal end extending to said seal, and

a non-terminal end that does not extend to said seal, said non-light emitting zone filling portion and said outermost partition covering the non-terminal end.

20. The plasma display panel of claim 19, wherein the non-terminal end extends past said non-light emitting zone filling portion when a width of an empty space between said seal and said non-light emitting zone filling portion is less than 50μm.

21. The plasma display panel of claim 19, wherein the non-terminal end extends past said outermost partition and into but not through said non-light emitting zone filling portion.

22. The plasma display panel of claim 19, wherein the non-terminal end extends past said outermost partition, through said non-light emitting zone filling portion, but does not extend into a space defined between said non-light emitting zone filling portion and said seal.

23. The plasma display panel of claim 15, wherein said non-light emitting zone filling portion and the first dielectric layer define a gas removal channel through which gas is removed from the plasma display panel.

24. The plasma display panel of claim 15, wherein said non-light emitting zone filling portion and said seal define a gas removal channel through which gas is removed from the plasma display panel.

25. The plasma display panel of claim 24, wherein the gas removal channel is defined by approximately one half of a space between said outermost partition and said seal.

26. The plasma display panel of claim 25, wherein the space between said outermost partition and said seal has a width of 20 mm, and the gas discharge channel has a width of 10 mm.

27. The plasma display panel of claim 23, wherein another gas removal channel is defined between said non-light emitting zone filling portion and said seal.

28. The plasma display panel of claim 15, further comprising an inert gas disposed within the plasma display panel except between the space defined between said outermost partition and said seal.

29. A method of manufacturing a plasma display panel, comprising:

providing a front glass substrate having first electrodes over which a first dielectric layer is formed;

providing a rear glass substrate disposed opposite said front glass substrate, said rear glass substrate having second electrodes over which a second dielectric layer is formed, the second electrodes not being parallel with the first electrodes;

forming partitions and a non-light emitting zone filling portion, the partitions and non-light emitting zone filling portions being formed on the second dielectric layer;

coating a fluorescent substance between the formed partitions;

forming a seal connecting corresponding edges of the front and rear glass substrates, where the non-light emitting zone filling portion is disposed between an outmost one of the partitions and the seal so as to prevent a discharge of the first electrodes in a space between the outermost partition and the seal.

30. The method of claim 29, wherein said forming the partitions and the non-light emitting zone filling portion comprises:

coating a partition material on the second dielectric layer;

coating a dry film resist on an upper surface of the coated partition material so as to form a mask over the portions of the partition material corresponding to the partitions and the non-light emitting zone filling portion;

removing the partition material not covered by the mask by ejecting abrasion particles.

31. The method of claim 29, wherein said forming the partitions and the non-light emitting zone filling portion comprises:

printing the partitions using a partition material on the second dielectric layer; and

printing the non-light emitting zone filling portion using the partition material on the second dielectric layer.

32. The method of claim 31, wherein:

the printing the partitions comprises printing the partitions using a first screen, and

the printing the non-light emitting zone filling portion comprises printing the non-light emitting zone filling portion using a second screen.

33. The method of claim 29, further comprising injecting an inert gas into the plasma display panel, wherein the inert gas is not in the space between the outermost partition and the seal.

34. The method of claim 29, further comprising

forming a gas removal channel adjacent to the non-light emitting zone filling portion and between the outermost partition and the seal; and

exhausting a gas from the plasma display panel through the gas removal channel.

35. The method of claim 34, wherein said forming the gas removal channel comprises forming the gas removal channel between the non-light emitting zone filling portion and the first dielectric layer.

36. The method of claim 34, wherein said forming the gas removal channel comprises forming the gas removal channel between the non-light emitting zone filling portion and the seal.

37. A plasma display panel, comprising:

a front glass substrate having first electrodes over which a first dielectric layer is formed;

a rear glass substrate disposed opposite said front glass substrate, said rear glass substrate having second electrodes over which a second dielectric layer is formed, the second electrodes not being parallel with the first electrodes;

a seal connecting corresponding edges of said front and rear glass substrates;

partitions formed on an upper surface of the second dielectric layer between the edges of said rear glass substrate, an outermost one of the partitions extending to said seal so as to prevent a discharge of the first electrodes in a space between said outermost partition and said seal; and

a fluorescent substance coated between said partitions.